What is claimed is:

1. An optical system comprising:

a holographic optical element including a plurality of holograms that have diffraction efficiency in different wavelength bands so as to be capable of reproducing different wavefronts in the different wavelength bands; and

a transmissive optical element that transmits light incident thereon,

wherein aberration resulting from a fact that the light transmitted through the transmissive optical element includes light of the different wavelength bands is corrected by the holographic optical element reproducing the different wavefronts in the different wavelength bands.

2. An optical system as claimed in claim 1,

wherein the corrected aberration is longitudinal chromatic aberration that occurs along an optical axis of the optical system.

3. An optical system as claimed in claim 1,

wherein the corrected aberration is chromatic aberration that occurs perpendicularly to the optical axis of the optical system.

4. An optical system as claimed in claim 1,

wherein the transmissive optical element is a prism.

5. An optical system as claimed in claim 1,

wherein the holograms included in the holographic optical element are reflective

holograms.

6. An optical system as claimed in claim 1,

wherein the holographic optical element has a positive optical power.

7. An information display optical system comprising:

a display element that displays an image formed by light of different wavelength bands;

a prism that transmits an image light incident thereon from the display element; and

a holographic optical element including a plurality of holograms that have diffraction efficiency in the different wavelength bands so as to be capable of reproducing different wavefronts in the different wavelength bands, the holographic optical element having an optical power equivalent to an optical power of a concave free-form reflective surface so as to function as an eyepiece lens by directing the image light from the display element to an observer's eye,

wherein aberration resulting from a fact that the light transmitted through the prism includes light of the different wavelength bands is corrected by the holographic optical element reproducing the different wavefronts in the different wavelength bands.

8. An optical system as claimed in claim 7,

wherein the corrected aberration is longitudinal chromatic aberration that occurs along an optical axis of the optical system.

9. An optical system as claimed in claim 7,

wherein the corrected aberration is chromatic aberration that occurs perpendicularly to the optical axis of the optical system.

10. An optical system as claimed in claim 7,

wherein the holograms included in the holographic optical element are reflective holograms.

11. A method for fabricating a holographic optical element having diffraction efficiency in a plurality of wavelength bands, comprising:

a plurality of steps of irradiating a holographic material with two light beams so as to record interference fringes produced between the two light beams on the holographic material, the plurality of steps being performed successively or simultaneously,

wherein, from one step to a next, wavelengths of the light beams with which the holographic material is irradiated are changed and a wavefront of at least one of the light beams is changed.

12. A method for fabricating a holographic optical element as claimed in claim 11,

wherein the wavefront of the at least one of the light beams is changed by a transmissive optical element that transmits light.

13. A method for fabricating a holographic optical element as claimed in claim 11,

wherein the wavefront of the at least one of the light beams is changed by a diffractive optical element that diffracts light.